Source Water Assessment Program (SWAP) Report
For
Bay Path Regional Vocational Technical High School

Prepared by the Massachusetts Department of Environmental Protection, Bureau of Resource Protection, Drinking Water Program

Date Prepared:
October 2, 2001

Table 1: Public Water System (PWS) Information

PWS NAME	Bay Path Regional Vocational Technical High School
PWS Address	57 Muggett Hill Road
City/Town	Charlton
PWS ID Number	2054031
Local Contact	John LeFlesh
Phone Number	(508) 248-5971

Well Name	*Source ID#*	*Zone I (in feet)*	*IWPA (in feet)*	*Source Susceptibility*
Well #1	2054031-01G	262	667	High
Well #2	2054031-02G	262	667	High
Well #3	2054031-03G	262	667	High
Well #4	2054031-04G	262	667	High

What is SWAP?

The Source Water Assessment Program (SWAP), established under the federal Safe Drinking Water Act, requires every state to:

? inventory land uses within the recharge areas of all public water supply sources;
? assess the susceptibility of drinking water sources to contamination from these land uses; and
? publicize the results to provide support for improved protection.

SWAP and Water Quality

Susceptibility of a drinking water source does *not* imply poor water quality. Actual water quality is best reflected by the results of regular water tests.

Water suppliers protect drinking water by monitoring for more than 100 chemicals, treating water supplies, and using source protection measures to ensure that safe water is delivered to the tap.

Introduction

We are all concerned about the quality of the water we drink. Drinking water wells may be threatened by many potential sources of contaminant, including septic systems, road salting, and improper disposal of hazardous materials. Citizens and local officials can work together to better protect these drinking water sources.

Purpose of this report:
This report is a planning tool to support local and state efforts to improve water supply protection. By identifying land uses within water supply protection areas that may be potential sources of contaminant, the assessment helps focus protection efforts on appropriate best management practices (BMPs) and drinking water source protection measures. Department of Environmental Protection (DEP) staff are available to provide information about funding and other resources that may be available to your community.

This report includes:
1. Description of the Water System
2. Discussion of Land Uses within Protection Areas
3. Recommendations for Protection
4. Attachments, including a Map of the Protection Areas

1. Description of the Water System

Bay Path Regional Vocational School obtains its water supply from a 460 feet deep rock well (04G), and three other wells (01G, 02G, & 03G) serve as backup. The main well (04G) is located to the southwest of the school building, just west of the access road to the school. Wells 01G and 02G are located together near a shed that is located southeast of the school building, just north of Muggett Hill Road. Well 03G is located in the woods east of the football field. Well 03G is 585 feet deep, and wells 01G & 02G are each 400 feet deep. Each well has a Zone I of 262 feet and an Interim Wellhead Protection Area (IWPA) of 667 feet. The wells are located in an aquifer with a high vulnerability to contamination due to the absence of hydrogeologic barriers that can prevent contaminant migration. Please refer to the attached map of the Zone I and IWPA.

What is a Protection Area?

A well's water supply protection area is the land around the well where protection activities should be focused. Each well has a Zone I protective radius and an Interim Wellhead Protection Area (IWPA).

- **The Zone I** is the area that should be owned or controlled by the water supplier and limited to water supply activities.

- **The IWPA** is the larger area that is likely to contribute water to the well.

In many instances the IWPA does not include the entire land area that could contribute water to the well. Therefore, the well may be susceptible to contamination from activities outside of the IWPA that are not identified in this report.

What is Susceptibility?

Susceptibility is a measure of a well's potential to become contaminated due to land uses and activities within the Zone I and Interim Wellhead Protection Area (IWPA).

The well serving the facility has no treatment at this time. For current information on monitoring results and treatment, please contact the Public Water System contact person listed above in Table 1.

2. Discussion of Land Uses in the Protection Areas

There are a number of land uses and activities within the drinking water supply protection areas that are potential sources of contamination.

Key issues include:

1. **Inappropriate activities in Zone Is;**
2. **Chemical Storage/ Very Small Quantity Hazardous Waste Generator;**
3. **Auto Repair Shop and Floor Drain;**
4. **Science & Graphics labs;**
5. **Stormwater drains; and**
6. **Wastewater treatment plant .**

The overall ranking of susceptibility to contamination for the wells is high, based on the presence of at least one high threat land use or activity in the IWPA, as seen in Table 2.

1. **Zone Is –** Currently, the wells do not meet DEP's restrictions, which only allow water supply related activities in Zone Is. The facility's Zone Is contains school buildings, athletic fields, roads, parking areas, and recreational activities. Please note that systems not meeting DEP Zone I requirements must get DEP approval and address Zone I issues prior to increasing water use or modifying systems.

   Recommendations:

✓ Keep non-water supply activities out of the Zone I.

✓ Remove all non-water supply activities from the Zone I to comply with DEP's Zone I requirements. Please note that water systems not meeting DEP Zone I requirements must get DEP approval and address Zone I issues prior to increasing water use or modifying their system.

✓ If the facility intends to continue using the structures, fields, roads and parking in the Zone I, use BMPs and restrict activities that could pose a threat to the water supply.

✓ Consider well relocation if Zone I threats cannot be mitigated.

Table 2: Table of Activities within the Water Supply Protection Areas

Potential Contaminant Sources	Zone I	IWPA	Threat	Comments
Chemicals & hazardous materials storage	No	All wells	Moderate	Materials in photographic, art, science, and vocational classrooms
Parking lot, driveways & roads	All wells	All wells	Moderate	Limit road salt and drain away from wells
Automotive, autobody shops	No	All wells	High	Use of oil, degreaser etc.
Floor drain	No	All wells	High	Flows into oil water separator, then into waste water treatment
Machine/metal working shop	No	All wells	High	Chemical use
Aboveground storage tank	No	Well #04G	Low	Propane
Science & Graphic art labs	No	All wells	High	Chemical use
Former Pig Farm	Well #04G	Well #04G	Moderate	Investigate any prior land use on the pig farm
Wastewater treatment plant	No	Well #04G	Moderate	
UIC (all wells)	Yes	Yes	High	
Structures	Yes	Yes	Moderate	Non-water supply structures in Zone I

*** -For more information on Contaminants of Concern associated with individual facility types and land uses please see the SWAP Draft Land Use / Associated Contaminants Matrix on DEP's website - www.state.ma.us/dep/brp/dws/.**

Glossary

Zone I: The area closest to a well; a 100 to 400 foot radius proportional to the well's pumping rate. To determine your Zone I radius, refer to the attached map.

IWPA: A 400 foot to ½ mile radius around a public water supply well proportional to its pumping rate; the area DEP recommends for protection in the absence of a defined Zone II. To determine IWPA radius, refer to the attached map.

Zone II: The primary recharge area defined by a hydrogeologic study.

Aquifer: An underground water-bearing layer of permeable material that will yield water in a usable quantity to a well.

Hydrogeologic Barrier: An underground layer of impermeable material that resists penetration by water.

Recharge Area: The surface area that contributes water to a well.

2. **Hazardous waste & Chemical storage within the IWPA –** Currently, hazardous waste from the different shops and virgin chemicals are properly labeled and stored. Hazardous wastes are removed by a licensed hauler. If improperly managed, spills or leaks of the chemicals can potentially contaminate the water supply.
   Recommendation:
   ✓ Continue to segregate and properly store the hazardous wastes and chemicals.

3. **Automotive/Auto body/Floor drains –** Chemicals such as hydraulic fluid, paints and thinners are used in the auto body shop. Water from the auto repair shop flows into a floor drain located in the shop. The water flows through an oil-water separator and then discharges into the on-site treatment plant. Non-Sanitary discharges to the on-site treatment plant are prohibited. Discharge from the floor drains MUST go to a DEP approved tight tank or the drains must be sealed
   R**ecommendations:**
   ✓ Bring the floor drain into compliance with DEP's Regulations (refer to attachment 4 - Industrial Floor Drain Brochure).
   ✓ Contact the UIC coordinator for the Central Region Office of the Department for additional technical assistance (Kurt Jacobson Tele. #508-767-2731).
   ✓ Interim actions:
   ✓ Cease using the floor drain
   ✓ Check the hydraulic lifts to ensure that they are not releasing hydraulic fluid underneath the concrete.

4. **Science & Graphic arts-** The laboratories are located within the IWPAs of the wells. Waste from these areas are collected and stored in labeled containers until they are hauled away by a licensed hauler. In case of leaks or spills, chemicals used and stored in these areas can potentially contaminate the water supply.
   Recommendations:
   ✓ Continue to practice good house keeping
   ✓ Use Best Management Practices, minimize and wipe up even small spills; use drip pans; have a spill response procedure and make staff aware of the procedure.

5. **Stormwater drains–** Stormwater drains are located within the IWPAs of the well. If not cleaned, stormwater drains carry storm water from the roadway and adjacent properties to the ground. As flowing storm water travels, it picks up debris and contaminants from streets, parking areas and lawns. Common potential contaminants include lawn chemicals, pet waste, leakage from dumpsters, household hazardous waste, and contaminants from vehicle leaks.
   Recommendation:
   ✓ Work to ensure that stormwater runoff is directed away from the well and is treated according to DEP guidance.

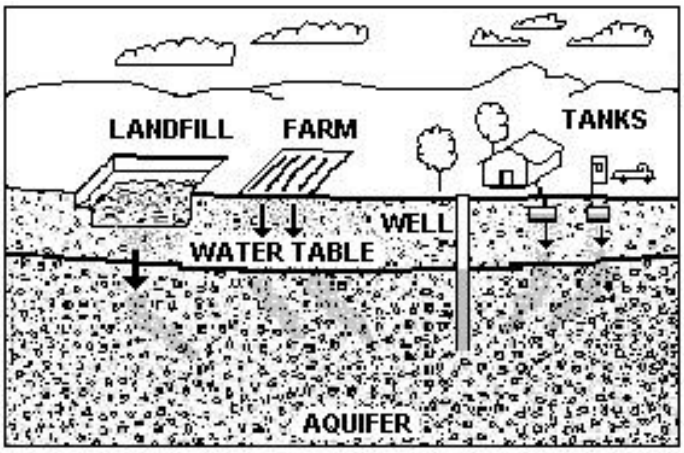

Figure 1: Example of how a well could become contaminated by different land uses and activities.

6. **Wastewater treatment Plant -** Spills, leaks, or improper handling or storage of treatment plant chemicals, sludge, and equipment maintenance materials and improper management of wastewater can potentially contaminate the water supply.
   Recommendation:
   ✓ Maintain increased vigilance in Best Management Practices for the wastewater treatment plant due to its proximity to Well #3.

Implementing the following recommendations will reduce the system's susceptibility to contamination.

For More Information:

Contact Josephine Yemoh-Ndi in DEP's Worcester Office at (508) 792-7650 x 5030 for more information and for assistance in improving current protection measures.

More information relating to drinking water and source protection is available on DEP's web site at: www.state.ma.us/dep/brp/dws.

Additional Documents:

To help with source protection efforts, more information is available by request or online at www.state.ma.us/dep/brp/dws, including:

1. Water Supply Protection Guidance Materials such as model regulations, Best Management Practice information, and general water supply protection information.
2. MA DEP SWAP Strategy
3. Land Use Pollution Potential Matrix
4. Draft Land/Associated Contaminants Matrix

Copies of this assessment have been provided to the water department, town boards, the town library and the local media.

3. Protection Recommendations

Bay Path Regional Vocational Technical High School should review and adopt the key recommendations above and the following:

Zone I:

- ✓ Prohibit public access to the wells and pumphouse by locking facilities, gating roads, and posting signs.
- ✓ If the School intends to continue utilizing the structures in Zone I, use BMPs - seal the floor and restrict (control) activities that could pose a threat to the water supply.

Training and Education:

- ✓ Refresher courses in hazardous material use, disposal, emergency response, and best management practices should be offered to staff and students; include custodial staff, groundskeepers, certified operator, and food preparation staff.
- ✓ Post drinking water protection area signs at key visibility locations.
- ✓ Incorporate groundwater education into school curriculum

Facilities Management:

- ✓ Implement standard operating procedures regarding proper storage, use and disposal of hazardous materials.
- ✓ Upgrade all oil/hazardous material storage tanks to incorporate proper containment and safety practices

Planning:

- ✓ Work with local officials in Charlton to include the facility IWPA in Aquifer Protection District Bylaws and to assist you in improving protection.
- ✓ Have a plan to address short-term water shortages and long-term water demands. Keep the phone number of a bottled water company readily available.
- ✓ Supplement the SWAP assessment with additional local information and incorporate it into water supply educational efforts. Use a potential contaminant threat inventory to assist in setting priorities, focusing inspections, and creating educational activities.

These recommendations are only part of your ongoing local drinking water source protection. Citizens and community officials should use this SWAP report to spur discussion of local drinking water protection measures.

4. Attachments

- Map of the Public Water Supply (PWS) Protection Area.
- Recommended Source Protection Measures Factsheet
- Your Septic System Brochure
- Industrial Floor Drains Brochure